

## **CLAIMS**

### **WHAT IS CLAIMED IS:**

1. A telecommunications system receiver comprising:
  - an antenna for receiving a radio signal having a first frequency;
  - a mixer for mixing said radio signal to an intermediate frequency signal;
  - a delta-sigma analog-to-digital converter for converting said intermediate frequency signal to a digital intermediate frequency signal;
  - a digital filter for converting said digital intermediate frequency signal to a digital baseband signal; and
  - a baseband processor for processing said digital baseband signal.
2. The invention of Claim 1 wherein said digital filter includes a first finite impulse response filter section for receiving an input signal, said first finite impulse response filter section having a first transfer function with a first programmable coefficient.
3. The invention of Claim 2 wherein said digital filter further includes an infinite impulse response filter section connected to said first finite impulse response filter section, said first finite impulse response filter section having a second transfer function with a second programmable coefficient.
4. The invention of Claim 3 wherein said digital filter further includes a second finite impulse response filter section connected to said infinite impulse response filter section for outputting a filtered output signal in response the receipt of said input signal by said programmable digital filter, said second finite impulse response filter section having a third transfer function with a third programmable coefficient.

5. The invention of Claim 1 wherein said baseband processor includes  
2 means for demodulating and/or despreading said digital baseband signal.

6. The invention of Claim 1 wherein said digital filter includes means for  
2 rejecting jammer signals in said digital baseband signal.

7. The invention of Claim 1 wherein said digital filter includes a sample  
2 rate converter.

8. The invention of Claim 1 wherein said digital filter includes means for  
2 eliminating any bias in said digital baseband signal.

9. The invention of Claim 1 wherein said digital filter includes means for  
2 adjusting the gain of said digital baseband signal.

10. A transceiver comprising:  
2 an antenna for receiving a radio signal;  
a mixer for mixing said radio signal to an intermediate frequency signal;  
4 a delta-sigma analog-to-digital converter for converting said intermediate  
frequency signal to a digital intermediate frequency signal;  
6 a digital filter for converting said digital intermediate frequency signal to a  
digital baseband signal;  
8 a baseband processor for processing said digital baseband signal and  
outputting a signal; and  
10 a transmitter for transmitting said signal.